

In the Claims

Please substitute the following claims:

1. A construct for post-transcriptional control of expression of a gene encoding a protein, wherein said construct comprises a polynucleotide encoding said protein and a polynucleotide encoding a carbohydrate responsive mRNA instability element, wherein post-transcriptional stability of said carbohydrate responsive mRNA instability element is controlled by said carbohydrate or an analogue thereof.

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2. The construct of claim 1, wherein said polynucleotide encoding said carbohydrate responsive mRNA instability element comprises the nucleotide sequence of SEQ ID NO. 9.

3. The construct of claim 1, wherein said carbohydrate comprises glucose, 3-O-methylglucose, 2-deoxyglucose, or a combination of any of the foregoing.

4. The construct of claim 1, wherein said construct is a plasmid.

5. The construct of claim 1, wherein said construct is a virus.

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6. The construct of claim 1, wherein said construct is a retrovirus.

7. The construct of claim 1, wherein said construct is a naked DNA sequence.

19. A method of screening for mutations of a carbohydrate responsive mRNA instability element, said method comprising:

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obtaining a DNA sample from a subject potentially having a mutation of the carbohydrate responsive mRNA instability element;

sequencing said DNA sample; and  
detecting mutations within the carbohydrate responsive instability element.

20. A recombinant cell comprising a construct, wherein said construct comprises a polynucleotide encoding a protein and a polynucleotide encoding a carbohydrate responsive mRNA instability element, wherein post-transcriptional stability of said carbohydrate responsive mRNA instability element is controlled by said carbohydrate or an analogue thereof.

21. A primer comprising a nucleic acid sequence capable of recognizing and binding a nucleotide sequence encoding a carbohydrate responsive mRNA instability element.

22. A kit for detecting a carbohydrate responsive mRNA instability element, said kit comprising multiple separate containers wherein each of said separate containers comprise:

a set of primers for PCR detection of a polynucleotide encoding the carbohydrate responsive mRNA instability element, and optionally a positive control comprising said polynucleotide encoding the carbohydrate responsive mRNA instability element.

23. A nucleic acid probe comprising a DNA sequence having affinity for a polynucleotide encoding a carbohydrate responsive mRNA instability element.

24. A host cell comprising a construct, wherein said construct comprises a polynucleotide encoding a protein and a polynucleotide encoding a carbohydrate responsive mRNA instability element, wherein post-transcriptional stability of said carbohydrate responsive mRNA instability element is controlled by said carbohydrate or an analogue thereof.

25. A replicable vector comprising a construct, wherein said construct comprises a polynucleotide encoding a protein and a polynucleotide encoding a carbohydrate responsive mRNA instability element, wherein post-transcriptional stability of said carbohydrate responsive mRNA instability element is controlled by said carbohydrate or an analogue thereof.

Please add the following new claims:

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26. The construct of claim 1, wherein said protein comprises  $\beta$ -globin.

27. The recombinant cell of claim 20, wherein said protein comprises  $\beta$ -globin.

28. The host cell of claim 24, wherein said protein comprises  $\beta$ -globin.

29. The replicable vector of claim 25, wherein said protein comprises  $\beta$ -globin.

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30. A construct for post-transcriptional control of expression of a gene encoding a protein, wherein said construct comprises a polynucleotide encoding said protein and a polynucleotide encoding a carbohydrate responsive mRNA instability element, wherein said polynucleotide encoding said carbohydrate responsive mRNA instability element comprises the nucleotide sequence of SEQ ID NO:9, and wherein post-transcriptional stability of said carbohydrate responsive mRNA instability element is controlled by said carbohydrate or an analogue thereof.

31. The construct of claim 30, wherein said carbohydrate comprises glucose, 3-O-methylglucose, 2-deoxyglucose, or a combination of any of the foregoing.

32. The construct of claim 30, wherein said carbohydrate comprises glucose.

33. The construct of claim 30, wherein said construct is a plasmid.

34. The construct of claim 30, wherein said construct is a virus.

35. The construct of claim 30, wherein said construct is a retrovirus.

36. The construct of claim 30, wherein said construct is a naked DNA sequence.

37. The construct of claim 30, wherein said protein comprises  $\beta$ -globin.

38. A method of screening for mutations of a carbohydrate responsive mRNA instability element, said method comprising:

obtaining a DNA sample from a subject, wherein said DNA sample comprises the nucleotide sequence of SEQ ID NO:9 or a mutation of said nucleotide sequence;

sequencing said DNA sample; and

detecting mutations within said nucleotide sequence.

39. A primer comprising a nucleic acid sequence capable of recognizing and binding the sequence of SEQ ID NO:9.

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40. A kit for detecting a carbohydrate responsive mRNA instability element, said kit comprising multiple separate containers wherein each of said separate containers comprise:

a set of primers for PCR detection of a polynucleotide sequence encoding the carbohydrate responsive mRNA instability element, wherein said polynucleotide sequence comprises SEQ ID NO:9; and optionally a positive control comprising said polynucleotide sequence of SEQ ID NO:9.

41. A nucleic acid probe comprising a DNA sequence having affinity for the polynucleotide sequence of SEQ ID NO:9.

42. A host cell comprising a construct, wherein said construct comprises a polynucleotide encoding a protein and a polynucleotide encoding a carbohydrate responsive mRNA instability element, wherein said polynucleotide encoding said carbohydrate responsive mRNA instability element comprises the nucleotide sequence of SEQ ID NO:9, and wherein post-transcriptional stability of said carbohydrate responsive mRNA instability element is controlled by said carbohydrate or an analogue thereof.

43. The host cell of claim 42, wherein said protein comprises  $\beta$ -globin.

44. A replicable vector comprising a construct, wherein said construct comprises a polynucleotide encoding a protein and a polynucleotide encoding a carbohydrate responsive mRNA instability element, wherein said polynucleotide encoding said carbohydrate responsive mRNA instability element comprises the sequence of SEQ ID NO:9, and wherein post-transcriptional stability of said carbohydrate responsive mRNA instability element is controlled by said carbohydrate or an analogue thereof.

45. The replicable vector of claim 44, wherein said protein comprises  $\beta$ -globin.

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46. A recombinant cell comprising a construct, wherein said construct comprises a polynucleotide encoding a protein and a polynucleotide encoding a carbohydrate responsive mRNA instability element, wherein said polynucleotide encoding said carbohydrate responsive mRNA instability element comprises the nucleotide sequence of SEQ ID NO:9, and wherein post-transcriptional stability of said carbohydrate responsive mRNA instability element is controlled by said carbohydrate or an analogue thereof.

47. The recombinant cell of claim 46, wherein said protein comprises  $\beta$ -globin.

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